Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Amendment of Part 90 of the	)	
Commission's Rules to Adopt	)	PR Docket No. 93-61
Regulations for Automatic Vehicle	)	
Monitoring Systems	)	
	)	

CONSOLIDATED OPPOSITION TO PETITIONS FOR RECONSIDERATION AND CLARIFICATION

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SUMMARY

AirTouch Teletrac ("Teletrac") applauds the Commission's adoption of permanent rules for Location Monitoring Service ("LMS") and anticipates the end of this rulemaking proceeding. However, while Teletrac has asked the Commission to reconsider only a narrow, technically prohibitive provision in the new LMS rules, a number of the petitions for reconsideration and clarification filed ask the Commission to make wide-ranging legal and policy changes that would substantially and unfavorably impact the LMS providers that hold a higher allocation status in the 902-928 MHz band and that have pioneered vehicle location service. Teletrac opposes these petitions.

Teletrac particularly opposes those petitions that, either explicitly or by inference, call for the elevating of unlicensed Part 15 operations to co-primary status with LMS. Teletrac also opposes suggestions that the grandfathering of currently licensed automatic vehicle monitoring providers be restricted and that "store and forward" interconnection be prohibited or restricted. Finally, Teletrac takes exception to a number of suggestions for revision to the technical requirements and spectrum allocation established by the Commission for certain users in the 902-928 MHz band.

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AirTouch Teletrac ("Teletrac"), by its attorneys and pursuant to Section 1.429(f) of the Commission's rules, 47 C.F.R. § 1.429(f), hereby submits its consolidated opposition to the various petitions for reconsideration and clarification that have been filed in this proceeding.[1] Teletrac particularly opposes those petitions that, either explicitly or by inference, call for the elevating of unlicensed Part 15 operations to co-primary status with the Location Monitoring Service ("LMS") in the 902-928 MHz band. Teletrac also opposes suggestions that the grandfathering of currently licensed automatic vehicle monitoring providers be restricted and that "store and forward" interconnection be prohibited or restricted. Finally, Teletrac takes exception to a number of suggestions for revision to the technical requirements and spectrum allocations established by the Commission for certain users in the 902-928 MHz band.

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1 Report and Order, FCC 95-41, released February 6, 1995. The Commission's Public Notice of the petitions for reconsideration filed in this proceeding appeared in the Federal Register on May 9, 1995, 60 Fed. Reg. 24632. Pursuant to Section 1.4(b)(1) of the Commission's rules, 47 C.F.R. § 1.4(b)(1), this consolidated opposition is timely filed.

I. INTRODUCTION

Teletrac, as the leading provider of commercial vehicle location services, has a considerable stake in the rules and policies adopted in this proceeding. While Teletrac has also asked the Commission to reconsider a narrow, technically prohibitive provision in the new LMS rules,[2] a number of the petitions for reconsideration and clarification filed ask the Commission to make wide-ranging legal and policy changes that would substantially and unfavorably impact the LMS providers that hold a higher allocation status in the 902-928 MHz band and that have pioneered vehicle location service.

II. DISCUSSION

A. Part 15 Operations Should Not, Either Explicitly or by Inference, be Co-Primary With LMS Providers, nor be Afforded any Additional Interference Concessions.

In the Report and Order, the Commission confirmed that unlicensed Part 15 devices in the 902-928 MHz band, "as in any other band, may not cause harmful interference to and must accept interference from all other operations in the band . . . ." Report and Order at ¶ 35. The Commission further stated that "[a]mateur and Part 15 operations will continue to be secondary to services with a higher allocation status." Id. at ¶ 36.

However, the Commission also devalued the status of LMS providers in the band by conditioning final grant of all major trading area ("MTA") multilateration LMS licenses on the "licensee's

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2 Teletrac has asked the Commission to reconsider the emission mask specification for multilateration LMS providers and proposed an alternative specification that has been jointly formulated and agreed upon by the multilateration LMS proponents. See Teletrac Petition for Partial Reconsideration and Clarification, filed April 24, 1995, at pp. 5-8.

ability to demonstrate through actual field tests that their systems do not cause unacceptable levels of interference to Part 15 devices." Id. at ¶ 82. This requirement, as Southwestern Bell Mobile Systems points out in its petition for reconsideration,[3] fundamentally changes Part 15 of the Commission's rules and the corresponding principle that Part 15 devices are entitled to no special interference protection. To materially alter Part 15 of the rules in this fashion, the Commission must institute a rulemaking and allow for public comment--something it has not done.[4]

Moreover, the Commission's "negative definition" of interference by Part 15 devices, actually an irrebuttable presumption of non-interference by these devices,[5] serves to elevate Part 15 devices' status to co-primary with LMS service, even though these devices are

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3 See Southwestern Bell Mobile Systems, Inc. ("SBMS") Petition for Reconsideration at p. 7.

4 For this reason, the Ad Hoc Gas Distribution Utilities Coalition's ("Ad Hoc") proposals for certain test criteria for interference (Ad Hoc Petition for Limited Reconsideration at pp. 18-20) should be rejected, as well as the Part 15 Coalition's proposal that it be designated as the Part 15 entity to participate in testing. Part 15 Coalition Petition for Reconsideration at p. 16. The predicate for testing at all is without merit.

5 Under the Commission's rules, a Part 15 device will not be deemed to be causing interference to a multilateration LMS system if it is otherwise operating in accordance with Part 15 and it meets the conditions of Section 90.361 of the Commission's rules. Report and Order at ¶ 36. As a result, Part 15 and amateur operators who voluntarily operate within the parameters of Section 90.361 will not be subject to harmful interference complaints from multilateration LMS systems in the 902-928 MHz band regardless of their actual impact on LMS systems. Id.

lawfully secondary to LMS. Yet many Part 15 petitioners[6] are not satisfied with their already unlawful status elevation and have asked the Commission for even further concessions from the licensed LMS operators in the 902-928 MHz band.

For example, Metricom claims that all Part 15 devices "available to carry" Part 90, subpart B and C traffic should be included in the irrebuttable presumption of non-interference of Section 90.361 of the Commission's rules, and that all mobile devices should be deemed not to cause interference to LMS. Metricom Petition at pp. 10-12. UTC claims that Part 15 devices used in utility communications systems should be given the same antenna height consideration as Part 90, subpart B and C eligibles. UTC Petition at pp. 13-17. The Connectivity for Learning Coalition ("Learning Coalition") claims that schools and libraries should be given the same antenna height consideration as Part 90, subpart B and C eligibles. Learning Coalition Petition at pp. 7-11. CellNet is more explicit, stating outright that the Commission should reclassify Part 15 operations as co-primary with LMS operations in the 902-928 MHz band. CellNet Petition at p. 3. CellNet also claims that Part 15 operations should be protected from LMS interference because otherwise some utility communications links allegedly could be disrupted. Id. at pp. 7-8. WTC claims that once a Part 15 device is installed, customers will be upset if the interference environment changes and their devices

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6 See, e.g., UTC Petition for Reconsideration, Wireless Transactions Corporation ("WTC") Petition for Reconsideration, Part 15 Coalition Petition for Reconsideration, CellNet Data Systems, Inc. ("CellNet") Petition for Reconsideration and Clarification, Ad Hoc Petition for Limited Reconsideration, Metricom, Inc. and Southern California Edison Company ("Metricom") Petition for Reconsideration and Clarification.

cannot be used. WTC Petition at p. 2. Other petitions claim that meter reading signals, alarm signals and railroad signals should all be protected from LMS interference.[7]

What these claims all conveniently ignore is the underlying basic Part 15 requirement to accept interference, not only from licensed services but also from other Part 15 devices. As a matter of fact, the interference conditions these petitioners are claiming to seek protection against, i.e., interference from LMS operations, are insignificant compared to the potential for interference from other Part 15 devices.[8] The Part 15 Coalition makes the dire prediction that the current Section 90.361 height restrictions will endanger survival of Part 15 technologies. Part 15 Coalition Petition at p. 13. However, experience and logic do not support this contention--remedying the interference caused by one harmful Part 15 device does not affect the Part 15 population in general, it only affects the particular device causing the interference. Moreover, the height restrictions of Section 90.361 will have very little impact on Part 15 because they apply only with respect to the

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7 See, e.g., Ad Hoc Petition at pp. 2-3; Alarm Industry Communications Committee Comments on American Radio Relay League, Inc.'s Petition for Partial Reconsideration at pp. 4-5; letter submission of Safetran Systems Corporation.

8 LMS interference is very sporadic, localized and only on specific frequencies and therefore can easily be avoided by Part 15 devices. Moreover, LMS base transmitters, their locations and their frequencies are a matter of public record and can thus be discovered and accommodated by the Part 15 community. Part 15 interference, on the other hand, can occur on any frequency, at any place and without warning. Thus, the Alarm Industry Communications Committee's call for public hearings on new LMS stations would only increase LMS providers' regulatory burden with no discernible additional benefit to the Part 15 community.

multilateration LMS sub-bands[9] and those Part 15 devices that need to operate at higher elevations may do so in the remaining 12 MHz of the band. Indeed, the converse conclusion is true--if the Commission relaxes the height restrictions or does not make the presumption of non-interference in Section 90.361 rebuttable, then survival of LMS is endangered.

The Commission's action in the Report and Order is already beyond the scope of this proceeding; further concessions to the Part 15 community are unwarranted and unprecedented. At the very least, the presumption of non-interference by any Part 15 device should be rebuttable under any circumstance. Thus, Teletrac believes that Section 90.361 of the rules must be further modified to provide for a rebuttable presumption of non-interference, even for a Part 15 device that meets the conditions outlined in Section 90.361.[10]

Aside from the questionable legality of the Commission's action in this proceeding with respect to the status of Part 15 devices in the 902-928 MHz band, the current irrebuttable presumption of non-interference in Section 90.361 poses very serious practical problems for licensed LMS users in the band. Thus, claims by various petitioners that certain uses of unlicensed Part 15 devices justify special protection are even more unreasonable. As a matter of fact, LMS systems are also used by public safety, emergency services,

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9 The height restriction does not apply in the center 10 MHz and lower 2 MHz (non-multilateration LMS) sub-bands.

10 If the Commission, even on reconsideration, should decide to retain the current presumption of non-interference in Section 90.361, there should be absolutely no exceptions made to this rule and no special treatment for any use or application of a Part 15 device.

utilities and educational systems for critical personnel safety and security functions. For example, Teletrac is utilized by 13 utilities in its six commercial markets.[11] These utilities rely on LMS services for personnel safety and improving operating efficiency. Teletrac is used as well by over 30 emergency medical services and handicapped/special purpose public transportation customers to track nearly 1,000 vehicles in these markets. These users rely on LMS services to protect their employees, patients and passengers while in transit and to help reduce their response time to emergency calls. Any protection of a Part 15 device in priority over Teletrac's licensed LMS service that places these uses in jeopardy cannot be sanctioned.

Teletrac also has over 90 law enforcement customers[12] that rely on Teletrac for a variety of public safety uses. Again, the protection of unlicensed Part 15 devices places these users at risk of unresolvable interference. While this interference may be rare, its occurrence cannot be anticipated and when it does occur, Teletrac must have a mechanism (which is not available under the newly-adopted rules) to resolve that interference.[13] Finally, Teletrac is used by

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11 These users include Michigan Consolidated Gas Company, ENTEX (Houston Gas Company), City of Houston Public Utilities, Southern California Water Company and Florida Public Utilities Company.

12 Part 90, subpart B eligibles and Federal Government entities.

13 Because this interference does occur only rarely, it will affect only a very small percentage of Part 15 devices and the devastating impact claimed by Part 15 petitioners is unfounded. In fact, Teletrac and SpectraLink Corp., Inc., a manufacturer of Part 15 devices, have recently engaged in testing to demonstrate their ability to coexist and work to resolve potential

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13 public transit agencies in its six markets. The majority of these agencies rely on LMS for monitoring school bus routes. In addition to improving routing efficiency to reduce fuel consumption and operating costs, these agencies and the parents of the children they transport depend on Teletrac to determine the status and location of buses in emergency situations or when they are running late. Protection of unlicensed Part 15 devices that actually cause harmful interference places the use of LMS by these Part 90, subpart C eligibles at risk of degraded or even disrupted service.

These examples serve to demonstrate the harm that may be inflicted on a licensed, operating service by unlicensed Part 15 devices that are allowed to operate even if they cause actual harmful interference. Part 15 petitioners' requests that their devices receive even more protection not only contradicts the lawful hierarchy of licensed and unlicensed services in the 902-928 MHz band but could cause substantial, real damage to the current users of the licensed LMS service. In fact, even the protection of Part 90, subpart B and C eligibles places the use of licensed LMS systems by these same eligibles at a disadvantage compared to their use of unlicensed Part 15 devices. Thus, the Commission should reject any request by Part 15 proponents to receive special treatment and should indeed reconsider the protections already awarded.

13(...continued)
interference issues. These tests reflect the ability to determine engineering solutions to interference problems as they occur in specific situations. Teletrac suggests that this is the better approach to potential interference issues, rather than turning isolated and resolvable problems into policy and regulatory changes for LMS that are contrary to both law and the public interest.

B. The Grandfathering Provisions of the Report and Order Should Not be Further Restricted.

The Report and Order recognized, to some extent, the valuable contribution and investment that existing multilateration LMS systems have made and, in order to avoid undue hardship to these already licensed systems, adopted certain grandfathering provisions which allow existing systems to operate under the interim rules for a limited period. Report and Order at ¶ 61. The Commission also conferred grandfathering rights on multilateration LMS licensees that have not yet constructed their systems so that those licensees might construct and operate their already licensed stations under the newly-adopted rules. Id. However, the Commission also established rather strict time limits by which existing LMS operators must modify their equipment and systems to comply with the new rules. These limits have forced Teletrac into a very compressed and unrealistic schedule to redesign its systems and convert its facilities. Moreover, the Commission's grandfathering rules require existing multilateration LMS licensees to have already filed applications to modify their licenses to comply with the new LMS rules. If Teletrac does not comply with this requirement in the time period provided, its licenses will not be renewed at expiration and will automatically be canceled. Thus, there is already in place a rather severe mechanism to prevent the hoarding or warehousing of authorizations that a number of petitioners allegedly fear.

Now, however, some petitioners want the Commission to even further limit its grandfathering provisions. Teletrac opposes all of these requests. For example, Pinpoint Communications, Inc. ("Pinpoint") asks that the Commission limit the number of

grandfathered licenses to 25 basic trading area ("BTA") markets.[14] While this poses no problem for Pinpoint, which only holds licenses in about 25 BTAs, this restriction is very problematic for Teletrac and others who hold many more licenses.[15]

Teletrac also opposes SBMS' position that grandfathering of existing licenses generally is not in the public interest. SBMS Petition at p. 13. Entities that already have licenses have invested a great deal of time, effort and money into the LMS service and, at least in Teletrac's case, are already providing this service for tens of thousands of mobiles. To disallow these systems and their embedded infrastructure and subscriber equipment now would only disserve the public interest by forcing the abandonment of current service users. Indeed, even with the adopted grandfathering provisions, the requirement to change frequencies will require a significant new investment in infrastructure equipment, replacement of subscriber equipment, system and equipment redesign and operation of dual systems during the transition period--all causing the existing LMS services to be more expensive. These burdens, imposed in a very short time frame, hardly give an existing, grandfathered licensee any significant competitive advantage vis a vis new applicants for LMS spectrum.

Teletrac also disagrees with SBMS' arguments that existing LMS systems should receive smaller spectrum allocations and that grandfathered licenses authorizing more spectrum than required for

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14 Pinpoint Petition for Reconsideration at pp. 15-16.

15 In fact, the grandfathering restrictions proposed by most petitioners unfairly target Teletrac since Teletrac operates the only commercial multilateration LMS systems in the country.

initial operations are not justified. SBMS Petition at pp. 13, 16. To the contrary, the record in this proceeding is clear on the benefits of larger spectrum allocations for multilateration LMS systems.[16] Multilateration systems use exclusively licensed spectrum, must have the use of that spectrum over a wide area and cannot obtain additional authorizations later unless no other party has applied for and received an authorization in the interim.[17]

Finally, Ad Hoc's suggestion that the transition time for grandfathered constructed LMS systems be reduced[18] completely overlooks the expense and customer impact of transitioning a system such as Teletrac's, with nearly 50,000 subscriber units, to a new set of frequencies and operating parameters.[19] The three-year transition period currently provided in the new rules already requires significant expense and aggressive action on Teletrac's part to migrate its extensive infrastructure and growing customer base. Moreover, as the Commission noted, there are only a very small number

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16 See Comments of Teletrac, MobileVision, L.P., and Pinpoint filed at earlier stages in this proceeding. Indeed, Teletrac and others, including SBMS, have asked for revisions to the multilateration LMS emission mask specifications because the existing spectrum allocations are too narrow.

17 In the same vein, however, limiting spectrum for non-multilateration LMS systems to the minimum required per license is appropriate because those systems will operate in shared spectrum, licensees may request additional authorizations for more transmitters as required and frequencies can be reused within a city through transmitters that are appropriately separated.

18 Ad Hoc Petition at p. 11.

19 In fact, the petitioners requesting further restrictions on or elimination of the grandfathering provisions do not have operating commercial LMS systems in place. Thus, they cannot possibly appreciate the complexity and expense involved in the required transition.

of multilateration LMS licensees currently authorized; thus, the potential impact of grandfathering is limited. Report and Order at ¶ 62. Teletrac should not be penalized for having pioneered commercial application of this service by losing its not only authorized but operating systems to entities that have not made as much progress.

C. The Permissible Use and Interconnection Provisions for LMS Under the New Rules Should Not be Further Restricted.

A number of petitioners have objected to the voice services allowed by LMS providers under the Commission's new rules.[20] The new rules will permit an LMS system to transmit status and instructional messages, either voice or non-voice, so long as the messages are related to the location or monitoring functions of the system. Report and Order at ¶ 26. The Commission also permits limited LMS interconnection, noting that Part 15 devices performing functions similar or identical to those of licensed LMS operations are not restricted from interconnecting with the public switched network. Report and Order at ¶ 27 and n. 60. "Store and forward" interconnection is currently permitted, whereby the transmissions from a vehicle or object being monitored are stored by the LMS provider for later transmission over the public switched network or transmissions received by the LMS provider from the public switched network are stored for later transmission to the vehicle or object being monitored. Id. The Commission will not permit real-time interconnection between vehicles or objects being monitored and the

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20 See Petitions of Part 15 Coalition, SBMS, Ad Hoc, Metricom, UTC and CellNet.

public switched network, except for emergency communications related to a vehicle or a passenger in a vehicle. Id.

As a general matter, Teletrac believes voice service should be allowed on a secondary basis because it is in the public interest. Further, there should be no arbitrary restrictions that would result in inefficient use of the spectrum. In essence, it will be the market that determines what service will make the most use of the spectrum. Thus, if the public finds LMS useful, cost effective and unique compared to other alternatives, then the public will pay for that service. If not, there will not be a proliferation of LMS systems and the Part 15 proponents' unfounded fears will be alleviated. If the systems do proliferate (because the market calls for them), then the public interest will have been met. Allowing market forces to ultimately decide how to make best use of this 902-928 MHz band comports with the Commission's stated policy goals of competition in the communications arena. Arbitrary regulatory limits on LMS services will only serve to make LMS more costly, less efficient and of lower quality even after existing LMS customers have spoken as to its value.

More particularly, the Part 15 Coalition, Ad Hoc and Metricom claim that voice communications are not necessary for emergency services. Part 15 Coalition Petition at pp. 8-10, Ad Hoc Petition at p. 15, n.22, Metricom Petition at pp. 13-14. While under many circumstances simple, push-button activation and coded messages may be adequate, not all emergency situations can be so neatly categorized. Push-button activation is effective for routine maintenance and minor emergency situations but when extraordinary

situations arise that require explanation, there is no substitute for voice communications. Emergency services may be augmented exponentially through simple voice messages that allow complex situations to be explained--explanations that can be both time and life saving. If voice is made available as an option, then LMS service providers will find innovative and useful ways to satisfy the public's demand for low-cost emergency voice communications. If it turns out not to be necessary, or if LMS providers cannot provide such service in a cost-effective manner, then the public will not use the service and any alleged potential band congestion will not be an issue. In the meantime, however, arbitrarily depriving the public of such a potentially valuable and useful option is illogical.

The Part 15 Coalition actually objects to LMS interconnection of any kind and Ad Hoc proposes much stricter general interconnection rules. Part 15 Coalition Petition at pp. 7-11, Ad Hoc Petition at pp. 15-17. These positions are untenable. Such prohibitions or restrictions would virtually prevent the public from accessing any LMS system to determine the location and status of others. Access on a store-and-forward basis by touch-tone telephone or dial-up modem is essential for multilateration LMS services for both consumer-oriented and commercial applications. For example, this is the only means for customers that are outside the coverage area of an LMS system to determine the location of and communicate with their mobiles. Store-and-forward interconnection as defined by the Commission will have

only a minimal impact on increasing use of the spectrum as long as location monitoring is primary, as it is under the new rules.[21]

The suggested mandatory delay for all communications[22] is also contrary to the needs of LMS customers, who require immediate information on the location and status of their mobiles, and offers no discernable benefits. Indeed, by definition, location-dependent services are dynamic--old information is useless information.[23] Likewise, the limits on message duration (two seconds) and update rates (30-minute spacing) that UTC proposes[24] serves to invalidate LMS because of the time-sensitive nature of the service. Many applications, especially stolen vehicle recovery, panic alerts and navigational/routing services, require updates of location and instructions as often as every few seconds.[25]

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21 Further restrictions on permissible use and interconnection for LMS will reduce spectrum congestion only because the extinction of LMS will result. Encouraging the extinction of LMS service is contrary to the Commission's findings that LMS accommodates a number of important functions. Report and Order at ¶ 3.

22 See Part 15 Coalition Petition at pp. 11-12.

23 This is especially true in emergency services and the routing and navigational services envisioned for intelligent transportation system applications. It would be futile to give a vehicle seeking navigational instruction or route guidance, or a public safety agency trying to find or track a vehicle, information that has been delayed by seconds, let alone "one minute" as the Part 15 Coalition suggests. Part 15 Coalition Petition at p. 12.

24 UTC Petition at p. 10.

25 UTC also argues that LMS as an interconnected, for-profit service would be classified as a commercial mobile radio service ("CMRS"). UTC Petition at p. 4. By this definition Metricom's proposed Ricochet service under Part 15 is also a CMRS. This scenario results in one CMRS provider in the band having to be licensed and having to receive that license through auction

(continued...)

D. A Number of the Technical and Spectrum Revisions Suggested by Petitioners are Without Merit.

A number of petitioners make various recommendations as to technical and spectrum revisions for the newly-adopted LMS rules, particularly with respect to power and height limits for LMS. Teletrac finds these suggestions to be totally without merit and maintains that they should be rejected outright.

Ad Hoc suggests that the height/power restrictions for LMS should be increased to provide further protection for Part 15 operations. Ad Hoc Petition at p. 5. Aside from the unlawful elevation of Part 15 to co-primary status that such increased restrictions would impute, this suggestion is technically flawed. For example, using the same analysis that Ad Hoc propounds in the affidavit and exhibit to its Petition, the range of interference to meter reading receivers from Section 15.247 spread spectrum devices located at 50 meters above the ground would be 1.2 miles for a 5 MHz direct sequence device and 3.1 miles for a frequency hopping device. Even a "low power" Section 15.249 device located at 100 meters above the ground would interfere at a distance of 0.4 miles. If the device is on a hill or on top of a building that places it at 200 meters above the ground, the range would be 0.9 miles. Since the proliferation of these other Part 15 devices will be substantially more widespread than LMS base units, the potential for interference

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25(...continued)
(Report and Order at ¶¶ 53-57) while the other CMRS provider in the band need do neither. A licensee that has to buy spectrum cannot be fairly subject to such major restrictions as no interconnection and no voice service while another for-profit provider can offer all these services without a license and without paying for the use of the spectrum.

is far greater. LMS systems are designed to tolerate a great deal of interference and use sophisticated techniques such as site diversity, spread spectrum modulation, error control coding and retransmission to overcome interference. Part 15 operations should be expected to 2 do the same, particularly since they are secondary to all other services in the band.

Ad Hoc and UTC both suggest that height/power restrictions should be imposed on LMS similar to those imposed on 929-930 MHz paging services.[26] Both of these petitioners, however, overlook the fact that LMS is already limited to substantially lower power than these paging services (300 watts ERP compared to 2000 watts ERP) and that 929-930 MHz paging systems are allowed to operate at levels above 300 watts ERP at heights up to 2000 feet.[27] Most LMS sites will operate well below this elevation and therefore no additional restrictions are necessary or justified. In fact, requiring height and power limitations beyond those already in place would compel LMS operators to build additional sites to provide coverage to those areas lost because of a transmitter's lower height or power level. In the end, there would be no benefit to either Part 15 or LMS by such restrictions. Limiting power and antenna height further would only add unnecessary expense and complexity to LMS services, resulting in a higher cost of service to the public.[28]

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26 Ad Hoc Petition at p. 6, UTC Petition at pp. 17-18.

27 See Section 90.494(f) of the Commission's rules, 47 C.F.R. § 90.494(f).

28 Ad Hoc also requests a further reduction in LMS mobile power from 30 watts ERP to 10 watts ERP, citing cellular power limits as an example. Ad Hoc Petition at p. 7 and n.9. This (continued...)

Teletrac also opposes the suggestion by Pinpoint and Uniplex that an LMS sub-band be subject to time sharing.[29] Pinpoint itself indicates the complications inherent in time sharing when it suggests the need for a time-sharing "arbitrator" and the necessity of allocating time slices to different service providers depending on their individual needs.[30] The Uniplex-Pinpoint Report only highlights many of the concerns expressed by Teletrac, MobileVision and SBMS about time-sharing and its potential abuses earlier in this proceeding.[31] Aside from the potential abuses of a time-sharing arrangement, no other LMS systems are able to operate pursuant to a time-sharing mechanism as proposed by Pinpoint and Uniplex. Although the Uniplex-Pinpoint experiment may have made time sharing appear desirable, the technical complexities of real-life implementation, the potential for abuse and dependence on competitors' actions make

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28(...continued)
suggestion ignores the fact that LMS systems must rely on a signal being received at several sites over a wide geographic area in order to determine a mobile unit's location. It also ignores the far greater impact of interference from the fixed-site applications of Part 15 devices compared to the interference potential from LMS mobiles.

29 Pinpoint Petition at pp. 7-13, Uniplex Petition at p. 9.

30 See Pinpoint Petition, Appendix 1, "Report on the Uniplex-Pinpoint Time-Sharing Demonstration in Washington, DC" at p. 5.

31 For example, if a provider decided it needed to increase its allocation of time to offer a higher quality service or meet capacity demands, would all other providers have to consent? Would all providers have to accept reduced allocations even if they had needs of their own for larger allocations? What if a request is made simply to "squeeze" other providers? What if a provider's system malfunctions and gets out of step with other systems? All other systems would face considerable risk of service loss until the problem was resolved. These potential problems are present with only two providers sharing, let alone more than two.

time sharing impractical and leave all sharers open to being "greenmailed" much as Uniplex expresses fears of being "greenmailed" by protected Part 15 operators.[32] Thus, time sharing, while optimistic in theory, offers no practical advantage and the Commission's rules should not be revised to include such a provision.

Finally, Teletrac opposes AMTECH Corporation's ("AMTECH") suggestion that non-multilateration LMS providers should be required to migrate out of the multilateration LMS bands only if harmful interference actually occurs.[33] While on the surface this may seem reasonable,[34] the test that AMTECH proposes for determining if a non-multilateration system is causing interference is unacceptable. If the Commission deems the proposal worth consideration, then the threshold for determining harmful interference must be corrected. AMTECH's proposed field strength limit of 90 dBuV/m at one mile away and six feet above ground[35] is equivalent to approximately -45 dBm. Adjusting for the height of an LMS receive site antenna (typically 200-500 feet), this could be as high as -30 to -10 dBm. This standard is clearly unacceptable since harmful interference to multilateration LMS receiver sites is likely at levels well below this field strength limit. Teletrac proposes that the threshold should be -100 dBm measured through the multilateration LMS receive

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32 See Uniplex Petition at p. 7.

33 See AMTECH Petition for Partial Reconsideration and Clarification at pp. 3-8.

34 However, given the reduced bandwidth allocated to multilateration LMS, AMTECH's proposal should be disregarded outright.

35 See AMTECH Petition at p. 12.

site's antenna regardless of the distance from the non-multilateration LMS transmitter.

III. CONCLUSION.

As Teletrac points out in this consolidated opposition, a number of the suggestions for revision of the new LMS rules on reconsideration are without merit and should be rejected by the Commission. A common theme runs through a number of these petitions, particularly those submitted by Part 15 proponents. These petitioners seem to have lost sight of the fact that this proceeding involved the promulgation of new, permanent rules for LMS, a service that the Commission has already found to be valuable. Yet the petitions all ask for a further reduction in the rights and abilities of LMS providers to offer this service and seek to undercut the LMS providers' allocation status in the 902-928 MHz band. If these petitioners cannot do it outright, then they propose such onerous restrictions and limitations on LMS so as to lead to the same result. The Commission must not allow this to happen. Accordingly, the

revisions suggested by petitioners that Teletrac has opposed here should be disregarded and the corresponding petitions dismissed.

Respectfully submitted,

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May 24, 1995

CERTIFICATE OF SERVICE

I, Theresa Fenelon, an attorney with the law firm of Pillsbury Madison & Sutro, do hereby certify that I have on this 24th day of May, 1995, caused to be forwarded copies of the foregoing CONSOLIDATED OPPOSITION TO PETITIONS FOR RECONSIDERATION AND CLARIFICATION by first class United States mail, postage prepaid, to the following:

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